

## Claims

What is claimed is:

1. A wastewater treatment bioreactor including an aeration device and a reaction device, wherein an aeration zone and a settle zone provided in the reaction device, the aeration device located above the aeration zone, and a barrier and a gap arranged between the aeration zone and the settle zone.

2. The bioreactor in accordance with claim 1, wherein air intake of the aeration device is installed in the middle of inlet pipe, one end of the sleeve 11 is connected with exit of the inlet pipe, the other end is connected with one end of a diffluent implement, of which other end is connected with one end of the sleeve 12.

3. The bioreactor in accordance with claim 1, wherein an uplift zone is provided near the connection of the aeration zone and aeration device, a diversion area is provided between the uplift zone and settle zone, a sludge concentration area is provided between the aeration zone and settle zone, a outlet trough is provided at one side of the settle zone.

4. The bioreactor in accordance with claim 2, wherein the diffluent implement is equipped at the gap which is between the sleeve 11 and sleeve 12.

5. The bioreactor in accordance with claim 2, wherein the diffluent implement is approximately hollow and conical with an upward arc in the big end.

6. The bioreactor in accordance with claim 2, wherein the inlet pipe consists of a slanting pipe and a straight pipe between which there is an angle in 15-45 degree.

7. The bioreactor in accordance with claim 2, wherein the sleeve 11 and sleeve 12 and the diffluent implement between them are all vertical.